Feb. 9, 1960 A. MAZEIKA 2,924,009

METHOD OF SECURING A HOSE NOZZLE OR TUBE FITTING TO A HOSE END

Filed Oct. 28, 1957

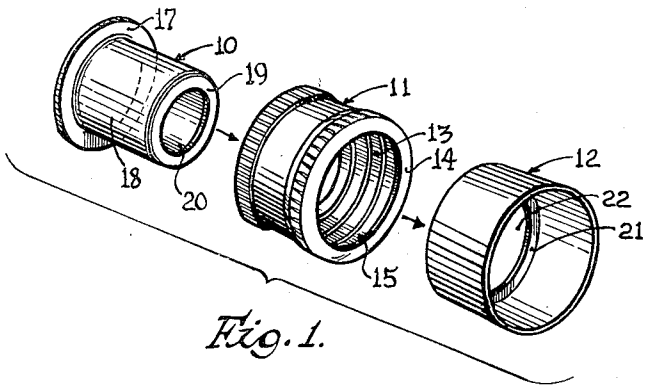


Fig. 1.

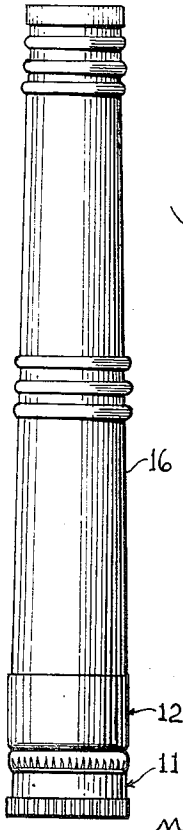


Fig. 6.

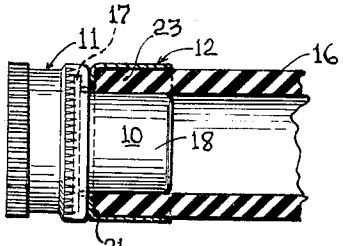


Fig. 2.

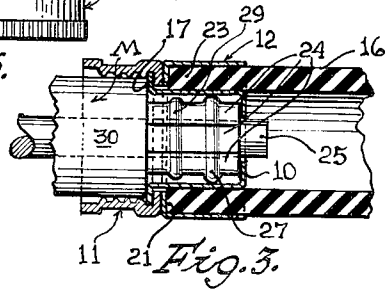


Fig. 3.

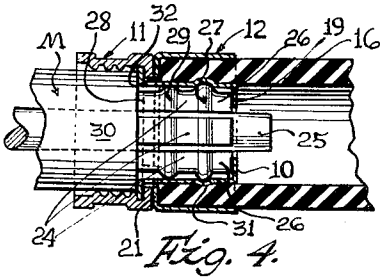


Fig. 4.

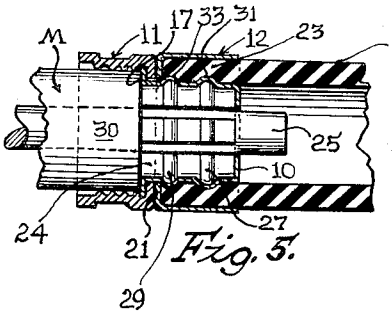


Fig. 5.

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METHOD OF SECURING A HOSE NOZZLE OR TUBE FITTING TO A HOSE END

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1 Claim. (Cl. 29—507)

This invention relates to a hose nozzle or tube fitting and the method of securing the same to the nozzle or tube.

As such the invention has for an object the provision of a simplified method and construction for economically and for practical purposes connecting the fitting to the end of the nozzle tube, insuring a permanent, durable and fluid-tight joint.

Another and equally important object of the invention is the method and construction employed for securing the end portion of the hose nozzle or tube between the cylindrical body of a valve cup and a ferrule, the latter encircling the end of the hose nozzle or tube.

Yet another and equally important object of the invention is the provision of an improved method for the purposes hereinafter more fully described wherein but a single continuous operation is employed for connecting the fitting to the end of the hose nozzle or tube, thus resulting in mass production at an economical cost, permitting sale of the assembled unit at an attractive selling price.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings showing the preferred form of construction, and in which:

Fig. 1 is a perspective view of the fitting embodied in the invention prior to assembly, with the parts thereof in exploded relation;

Fig. 2 is a fragmentary longitudinal sectional detail view of the fitting in its first step of assembly to the end of a hose nozzle or tube;

Fig. 3 is a fragmentary sectional detail view of the same showing the assembly mounted upon a mandrel or expanding tool;

Fig. 4 is a fragmentary sectional detail view similar to Fig. 3 showing a partial operation of the mandrel;

Fig. 5 is a fragmentary sectional detail view similar to Fig. 4 showing the completed expanding operation of the mandrel;

Fig. 6 is a side elevational view of a hose nozzle including my improved fitting associated therewith.

The preferred form of construction and method of my invention are best understood by reference to the accompanying drawings in which the fitting comprises three parts, namely, a valve cup **10**, a coupler **11**, and a ferrule **12**. Each of these parts is preferably a stamping.

The coupler **11** has an internally threaded surface **13** by means of which the coupler is threaded upon the threaded nipple of a hose or the like. The coupler **11** at one end thereof includes an inturned flange **14** defining an opening **15**.

The valve cup **10** is so termed because it houses a valve member (not shown) which controls the flow of water or liquid through the nozzle **16**. Such valve cup

at one end includes an outwardly turned flange **17** formed as an integral part of a cylindrical body **18** having at its opposite end portion an inturned flange **19** defining an opening **20**. The outside diameter of the cylindrical body **18** of the cup valve **10** is slightly smaller than the diameter of the opening **15** whereby the valve cup may be projected through the opening **15** with its flange **17** bearing upon the flange **14** of the coupler **11**. The ferrule **12** at one end provides an inturned flange **21** defining an opening **22** of a diameter to permit projection of the cylindrical body **18** into the ferrule **12** in spaced relation with respect to the cylindrical walls of the latter. In such position, the flange **21** of the ferrule **12** will bear against the flange **14**. The end portion **23** of the nozzle tube **16** is projected into the ferrule **12** with the cylindrical body **18** of the valve cup **10** projecting into the end portion **23**.

The assembly now takes the appearance shown in Fig. 2 and is ready for operation upon by the mandrel M. The mandrel may be of any approved construction including expandible segments **24** through which extends a tapered expanding shaft **25**. The segments **24** adjacent the end **26** thereof together provide a circumferentially extending rib **27**. The segments adjacent the end **28** thereof together also provide a circumferentially extending rib **29**. The outside diameter of the circumferential rib **27** is greater than the rib **29**.

The tapered shaft **25**, as before indicated, may be moved longitudinally with respect to its long axis under pneumatic power.

The assembly as shown in Fig. 2 is mounted on the mandrel M with the coupler **11** encircling the sleeve **30** and with the valve cup **10** embracing the expandible segments **24** with the flange **17** abutting the end of the sleeve **30**. The initial movement of the shaft **25** to initiate expansion of the segments **26** will cause the rib **27** to expand the adjacent portion of the body **18** of the of the valve cup **10** to form therein a locking rib **31**. The forming of this rib **31** accomplishes a two-fold purpose: In the first place it expands the end portion **23** of the nozzle tube laterally to the left as viewed in Fig. 4, thereby compressing the end **32** of the end portion **23** of the tube **16** between the locking rib **31** and the flange **21**; and secondly it locks the end portion **23** of the tube **16** between the ferrule **12** and the rib **31** to prevent longitudinal movement of the end portion **23** away from the flange **21** or to the right as viewed in Fig. 4.

By continuous movement of the shaft **25**, rib **29** will cause a sealing rib **33** to radially expand out of the body **18** of the cup **10** so as to compress into sealing engagement with the flange **21** the end **32** of the tube **16** which is compressed and locked between the locking rib **31** and the flange **21**. This latter formed sealing rib **33** thus frictionally positions the flange **19** of the cup **10** and the flange **21** of the ferrule on opposite sides of the flange **14** of the coupler **11**.

The foregoing method and construction eliminate costly machine screw operations, in that a permanent connection is provided between the coupler **11** and the valve member **10** and ferrule **12** without the use of threads, thereby eliminating entirely threading operations in providing such connection.

It will be readily appreciated that my improved fitting construction and method are simple in operation and construction, resulting in mass production at an economical cost.

While I have shown and described my improved fitting and method of making the same in connection with a hose nozzle, it is to be understood that I am not in any way limiting my invention and the use of my

improved fitting and method of making the same, to a hose nozzle.

The various advantages and objects of the invention may be accomplished by modifications of the particular method and embodiment specifically described herein, and it is intended that the appended claims shall include all equivalent arrangements, constructions and methods coming within their call.

Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:

A method of securing a fitting comprising a valve cup having at one end an outwardly turned circumferentially extending flange and at its opposite end an inwardly turned circumferentially extending flange, positioning said valve cup with its major portion within a ferrule having an inwardly turned circumferentially extending flange, providing on a coupler an inwardly turned circumferentially extending flange arranged between the first mentioned flange of the cup and the flange of the ferrule, projecting between the cup and

the ferrule one end of a hose, compressing a portion of the hose adjacent the end thereof longitudinally between the cup and the ferrule by forming in the cup within the area of the ferrule a circumferentially extending locking rib, sealing the compressed end of the hose into sealing engagement with the flange of the ferrule by forming in the cup between the locking rib and the flange of the ferrule a sealing rib having a diameter less than the locking rib thereby frictionally positioning the flange of the cup and the flange of the ferrule on opposite sides of the flange of the coupler.

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